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| 10/506,752 | 09/03/2004 | Yoshihiro Kato | 09792909-5984 | 7054 |

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| EXAMINER |
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NGUYEN, TRAM HOANG

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| ART UNIT | PAPER NUMBER |
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2818

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/506,752 | Applicant(s) KATO ET AL. | |
| | Examiner Tram H. Nguyen | Art Unit 2818 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1,2,6-8 and 10 is/are rejected.
- 7) ☒ Claim(s) 3-5 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 6/1 are rejected under 35 U. S. C. § 102 (e) as being anticipated by Lenssen et al. (hereinafter refer as Lenssen) (U.S. Patent No. 2002/0008988).

Regarding to **claim 1**, Lenssen discloses a magnetic memory device constructed as a magnetic random access memory, said magnetic memory device comprising:

A memory element (fig. 2, reference numeral 3) having by laminating a magnetization pinned layer (pg. 3, par. 44, lines 1-6; fig. 2, reference numeral 4) in which the orientation of magnetization is pinned and magnetic layer in which the orientation of magnetization is changeable (pg. 3, par. 44, lines 1-6; fig. 2, reference numeral 6), and a magnetic shield layer for magnetically shielding said memory element said memory element disposed so as to avoid an edge portion and center portion of said magnetic shield layer (pg. 3, par.45, lines 16-19; fig.3, reference numeral 14).

Regarding to **claim 6/1**, Lessen discloses all the limitations of claimed invention for the reason set forth above; besides, Lessen also teaches the said magnetic shield

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layer (refer to the right hand side of fig. 3 reference numeral 14) is disposed on the top of a package having by sealing said memory element therein, or on the upper portion of said memory element within said package (refer to the right hand side of fig. 3 reference numeral 14).

3. Claim 6 is rejected under 35 U. S. C. § 102 (b) as being anticipated by the background of the invention.

Regarding to **claim 6**, Lessen discloses all the limitations of claimed invention for the reason set forth above; besides, Lessen also teaches the said magnetic shield layer is disposed on the top and top of a package having by sealing said memory element therein (pg. 11, lines 15-26), or on the upper portion and lower portion of said memory element within said package (pg. 11, lines 15-26).

Claim Rejections - 35 U.S.C. § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 6/2, 7 and 9 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Lessen, in view of Sharma et al. (hereinafter refer to as Sharma) (US Patent No. 6,808,940).

Regarding to **claim 2**, Lessen discloses a magnetic memory device constructed as a magnetic random access memory, said magnetic memory device comprising:

A memory element (fig. 2, reference numeral 3) having by laminating a magnetic layer capable of being magnetized (pg. 3, par. 44, lines 1-6; fig. 2, reference numeral 4 or 6). Eventhough, Lessen does not clearly mention the magnetic layers being capable of being magnetized, it would have been obvious well- known in the art that magnetic layers are capable of being magnetized.

And a magnetic shield layer for magnetically shielding said memory element said memory element disposed so as to avoid an edge portion and center portion of said magnetic shield layer (pg. 3, par.45, lines 16-19; fig.3, reference numeral 14).

Regarding to **claim 6/2**, Lessen discloses all the limitations of claimed invention for the reason set forth above; besides, Lessen also teaches the said magnetic shield layer (refer to the right hand side of fig. 3 reference numeral 14) is disposed on the top of a package having by sealing said memory element therein, or on the upper portion of said memory element within said package (refer to the right hand side of fig. 3 reference numeral 14).

Regarding to **claim 7**, Lessen discloses all the limitations of the claimed invention for the reason set forth above; except for memory elements are presented almost all over said package. It would have been obvious to one of ordinary skill in the

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art at the time the invention was made to dispose memory elements all over said package since it was known in the art that magnetic memory package comprises a plurality of magnetic memory elements almost all over.

Regarding to **claim 9**, Lessen discloses the claimed invention except for the reason set forth above; except for the said magnetic shielding layer is in form of a flat film or plate or having concave and/or convex portion thereon, or through-holes such as mesh or slits. However, Sharma teaches the shape of magnetic shielding layer (fig. 6b, reference numeral 610, col. 12, lines 14-17).

5. Claims 10 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Lessen, in view of the background of the invention

Regarding to **claim 10**, Lessen teaches all the limitations of claimed invention for the reason set forth above; except for said memory device is constructed such that insulating material layer or conductive material layer is sandwiched between said magnetization pinned layer and said magnetic layer, that with a magnetic field induced by passing a respective current through wirings provided on the top and the bottom of said memory element, the orientation of magnetization in said magnetic layer is aligned in a prescribed direction thereby writing information thereto, and that said written information is read out by use of the tunnel magneto-resistance effect between said wirings. However, the background invention discloses a memory device (fig. 16) is constructed such that insulating material layer or conductive material layer (fig. 14, reference numeral 3) is sandwiched between said magnetization pinned layer (fig. 14,

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reference numeral 4) and said magnetic layer (fig. 14, reference numeral 2), that with a magnetic field induced by passing a respective current through wirings (fig. 16, reference numeral 22) provided on the top and the bottom of said memory element, the orientation of magnetization in said magnetic layer is aligned in a prescribed direction thereby writing information thereto, and that said written information is read out by use of the tunnel magneto-resistance effect between said wirings (pg 4, lines 27-31 through pg 5, lines 1-10).

Allowable Subject Matter

6. Claims 3-5 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, since the prior art of record and considered pertinent to the applicant's disclosure does not teach or suggest as stated:

In **claim 3**, said memory element is disposed in a region between a position at $0.1 L$ inward from one side of said magnetic shield layer and a position at $0.15 L$ outward from the center of said magnetic shield layer toward one side thereof, where a length from one side of said magnetic shield layer to an opposed side thereof is L .

In **claim 4**, the memory element is disposed in a region between a position at $0.2 L$ inward from said one side and a position at $0.15 L$ outward from the center of said shield layer toward said one side thereof, where said magnetic shield layer is provided on both sides of said memory element, and a distance between said magnetic shield

layers, a length from said one side of said magnetic shield layer to the opposed side thereof, and an external magnetic field to be applied are constant respectively.

In **claim 5**, said memory element is disposed in a region between a position at 0.1 L inward from said one side thereof and a position at 0.2 L outward from the center of the shield layer toward said one side thereof, where a distance between said magnetic shield layers, a thickness of said magnetic shield layers, and an external magnetic field to be applied are constant respectively.

In **claim 9**, said magnetic shield layer is formed of soft magnetic material that exhibits saturation magnetism at 1.8T or more.

Conclusion

7. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tram H. Nguyen whose telephone number is (571)272-5526. The examiner can normally be reached on Monday-Friday, 8:30 AM – 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)272-1787. The fax numbers for all communication(s) is (703)872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1625.

A handwritten signature in black ink, appearing to read 'THN'.

Tram H. Nguyen
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11/18/2005